# (19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 3 June 2004 (03.06.2004)

**PCT** 

## (10) International Publication Number WO 2004/046935 A3

(51) International Patent Classification7:

G06F 1/00

(21) International Application Number:

PCT/IB2003/005209

(22) International Filing Date:

14 November 2003 (14.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

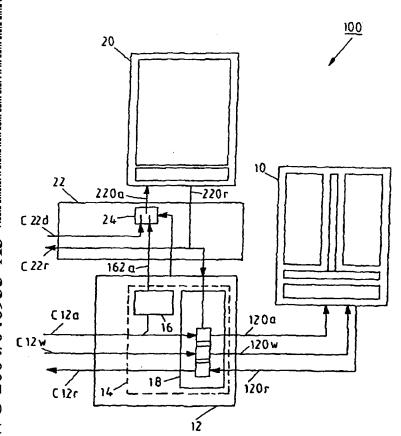
102 54 320.8 21 November 2002 (21.11.2002) DI

- (71) Applicant (for DE only): PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH [DE/DE]; Steindamm 94, 20099 Hamburg (DE).
- (71) Applicant (for all designated States except DE, US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BUHR, Wolfgang [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE).
- (74) Agent: MEYER, Michael; Philips Intellectual Property & Standards GmbH, Weisshausstr. 2, 52066 Aachen (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: CIRCUIT ARRANGEMENT WITH NON-VOLATILE MEMORY MODULE AND METHOD OF EN-/DECRYPTING DATA IN THE NON-VOLATILE MEMORY MODULE



(57) Abstract: In order further to develop a circuit arrangement (100) for electronic data processing - having at least one non-volatile memory module (10) for storing data to be protected against unauthorized access by means of encryption or decryption -having at least one code R'ead! O'nly!M'emory! module (20) for storing and/or supplying at least one R'ead!O'nly!M'emory! code; and -having at least one code ROM module interface logic circuit (22) assigned to the code ROM module (20) and an en-/decryption method based thereon in such a way that on the one hand the key code may be changed for different controller versions with different ROM codes and on the other hand the length of the key code is not limited, it is proposed that the data assigned to the memory module (10) be encrypted or decrypted by means of the ROM code supplied by the code ROM module (20).

ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

### (88) Date of publication of the international search report: 17 March 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

#### INTERNATIONAL SEARCH REPORT

PC 03/05209

A. CLASSIFICATION OF SUBJECT MATERIAL TO THE SUBJECT M

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  $IPC \ 7 \ G06F$ 

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

#### EPO-Internal

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 330 404 A (FUJITSU LTD) 30 August 1989 (1989-08-30) column 1, line 1 - line 47 column 3, line 4 - column 9, line 41	1-8,10
′ .	, Time 41	9
x	US 2002/099948 A1 (KOCHER PAUL C ET AL) 25 July 2002 (2002-07-25) paragraph '0033! - paragraph '0038! paragraph '0050! - paragraph '0077!	5,6,8,10
A		1,2,4
′	EP 1 022 659 A (PHILIPS CORP INTELLECTUAL PTY; KONINKL PHILIPS ELECTRONICS NV (NL)) 26 July 2000 (2000-07-26) paragraph '0003! - paragraph '0013!	9
4		1,6

X Further documents are listed in the continuation of box C.	X Patent family members are listed in annex.				
Special categories of cited documents:  "A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document but published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means	<ul> <li>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</li> <li>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</li> <li>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled</li> </ul>				
*P* document published prior to the International filing date but later than the priority date claimed	in the art.  *&* document member of the same patent family				
Date of the actual completion of the international search	Date of mailing of the international search report				
22 December 2004	04/01/2005				
Name and mailing address of the ISA  European Patent Office, P.B. 5818 Patentlaan 2  NL - 2280 HV Rijswijk  Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  Fax: (+31-70) 340-3016	Authorized officer Pinto, R.M.				

### INTERNATIONAL SEARCH REPORT

Internation No PC 1318 03/05209

C.(Continu	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	03/05209
Category °		Relevant to claim No.
A	US 2001/015919 A1 (KEAN THOMAS A) 23 August 2001 (2001-08-23) paragraph '0009! - paragraph '0025!	 1-4,6-10

### INTERNATIONAL SEARCH REPORT

-...formation on patent family members

			don on patent raining me		PCI	03/05209	
Patent document cited in search report		Publication date		Patent family member(s)		Publication date	
EP 033	0404	A	30-08-1989	JP JP DE EP ES US	1213711 A 2534532 B2 2005158 A 68919483 D1 0330404 A2 2064432 T3 4985920 A	28-08-1989 18-09-1996 10-01-1990 12-01-1995 30-08-1989 01-02-1995 15-01-1991	
US 2007	2099948	A1	25-07-2002	US US AU CA EP JP WO ZA	6289455 B1 2004111631 A1 4852600 A 2384012 A1 1208667 A1 2003529963 T 0117163 A1 200201867 A	11-09-2001 10-06-2004 26-03-2001 08-03-2001 29-05-2002 07-10-2003 08-03-2001 06-03-2003	
EP 1022	2659	Α	26-07-2000	DE EP JP US	19901829 A1 1022659 A2 2000235523 A 6735697 B1	20-07-2000 26-07-2000 29-08-2000 11-05-2004	
US 200	1015919	A1	23-08-2001	EP US AU WO GB	1124330 A2 2001037458 A1 2209301 A 0146810 A1 2375418 A ,B	16-08-2001 01-11-2001 03-07-2001 28-06-2001 13-11-2002	

Intermional Application No